

The new CAS-DIS digital ionosonde

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Abstract

A high quality digital ionosonde called the Chinese Academy of Sciences digital ionosonde (CAS-DIS) has been developed for investigations of the ionosphere. Two important features are used for the CAS-DIS; first, the technique of analog down-conversion has been replaced by the new approach of digital down-conversion technology. Secondly, to solve the problem of large instantaneous receiving bandwidth in digital receivers, an analog narrowband tracking filter is used for the CAS-DIS. The center frequency of the filter tracks the carrier frequency transmitted in real-time, to ensure that the frequency components are filtered out of the effective bandwidth. This report describes the system architecture of the CAS-DIS, its main features, and its test results for ionosphere detection.

Keywords

Ionosonde; Coherent integration; Pulse compression; Digital down-conversion; Narrowband tracking filter

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References

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